

PATENT CLAIMS

1. A double progressive spectacle lens, wherein at least one of the two progressive surfaces has at least one of the following properties:

principal line of sight

- a) the profile of the surface power along the principal line of sight in the progression channel is not monotonic between $y = -15$ mm and $y = +10$ mm,
- b) the profile of the surface astigmatism along the principal line of sight has at least two clearly expressed maxima that are at least 0.175 dpt above an adjacent minimum,
- c) the surface astigmatism A deviates in absolute terms by more than dA upward or downward from the prescription value A_R of the cylinder at approximately all points along the principal line of sight,
- d) the surface astigmatism has a global maximum on or in the vicinity of the principal line of sight between $y = \pm 20$ mm,
- e) the surface astigmatism has a local maximum on or in the vicinity of the principal line of sight between $y = \pm 20$ mm,
- f) 85% of the change in the surface power along the principal line of sight is reached on each of the surfaces on a path of less than 11 mm,
- g) the channel width at 0.75 dpt has at least two minima in the progression channel between $y = +10$ mm and $y = -18$ mm,

distance zone

- h) the surface astigmatism A deviates in the distance zone by more than dA upward or downward from the prescription value A_R of the cylinder at

approximately all points:

$|A-A_R| \geq dA$, with $dA \geq 0.18$ dpt

- 5 i) the surface astigmatism A deviates in the distance zone by more than dA upward or downward from the prescription value A_R of the cylinder at at least one point:

$|A-A_R| \geq dA$, with $dA \geq 0.5$ dpt

10 near zone

- j) the surface astigmatism A deviates in the near zone by more than dA upward or downward from the prescription value A_R of the cylinder at approximately all points:

$|A-A_R| \geq dA$, with $dA \geq 0.22$ dpt

- k) the surface astigmatism A deviates in the near zone by more than dA upward or downward from the prescription value A_R of the cylinder at at least one point:

$|A-A_R| \geq dA$, with $dA \geq 0.4$ dpt.

2. The double progressive spectacle lens as claimed
25 in claim 1, wherein at least one of the two progressive surfaces has at least one of the following properties:

periphery

- 30 l) the surface astigmatism has at least three local maxima within a circle about the origin of radius 30 mm,

m) the maximum of the gradient of the surface power is greater than $k \cdot Add$ with $k = 0.2$ l/mm,

- 35 n) the maximum of the gradient of the surface astigmatism is greater than $m \cdot Add$ with $m = 0.2$ l/mm.

3. The double progressive spectacle lens as claimed in claims 1-2, wherein at least one of the two progressive surfaces has at least one of the following properties:

5

horizontal sections

- o) the surface power in the horizontal section has a local maximum in the distance zone or in the vicinity of the principal line of sight,
- 10 p) the surface power in the horizontal section has a local minimum in the near zone or in the vicinity of the principal line of sight,
- q) the surface astigmatism in the horizontal section
- 15 has a maximum in the progression zone or in the vicinity of the principal line of sight.

4. The double progressive spectacle lens as claimed in claims 1-3, wherein in b) the maxima occur between
20 $y = -20$ mm and $y = +18$ mm.

5. The double progressive spectacle lens as claimed in claims 1-4, wherein in c) $|A-A_R| \geq dA$, with $dA \geq 0.2$ dpt.

25

6. The double progressive spectacle lens as claimed in claims 1-5, wherein the maximum is between $y = \pm 10$ in d).

30 7. The double progressive spectacle lens as claimed in claims 1-6, wherein in e) the maximum is between $y = \pm 10$ and no higher value of the surface astigmatism exists at a distance of 20 mm.

35 8. The double progressive spectacle lens as claimed in claims 1-7, wherein in f) the increase in the surface power on the front surface and rear surface runs offset vertically in such a way that an extended

progression length of more than 11 mm is produced in the position of use.

9. The double progressive spectacle lens as claimed
5 in claims 1-8, wherein in g) the minimum channel width B at 0.75 is a function of the addition and smaller than B, with $B = b_0 + b_1 \cdot \text{Add}$, b_0 and b_1 being capable of varying between the bounds $b_0 = 8.5-9.5$ mm and $b_1 = -2.2 - -1.8$ mm/dpt, and the value of the other
10 minima in each case being at least 12% above the value of the smallest minimum, and the middle of the channel, the arithmetic mean of the horizontal coordinates of the right-hand and left-hand lines of equal surface astigmatism being in a range of 4 mm, preferably 2 mm
15 to the right and left of the principal line of sight.

10. The double progressive spectacle lens as claimed in claims 2-9, wherein in l) the surface astigmatism has at least three local maxima within a circle about
20 the origin of radius 20 mm.

11. The double progressive spectacle lens as claimed in claims 2-10, wherein in m) the maximum is within a circular area about the original coordinates of radius
25 25 mm, preferably 22 mm.

12. The double progressive spectacle lens as claimed in claims 2-11, wherein in n) the maximum is within a circular area about the original coordinates of radius
30 20 mm, preferably 18 mm.